

WHAT IS CLAIMED IS:

1. A hand-held flossing device, comprising:  
a housing having a handle portion and a head portion, the housing supporting a floss supply comprising a floss, a floss path, a floss advancement mechanism configured to selectively advance floss from the floss supply and through the path, and a stop mechanism configured to selectively engage at least a portion of the floss to resist advancement of the floss upon actuation of the advancement mechanism so that a tension is imparted to the floss between the stop mechanism and the advancement mechanism;  
the floss comprising a first surface coating comprising a water soluble material and a second surface coating comprising a generally non-water soluble material, the second coating substantially encapsulating the first coating.
2. The hand-held flossing device of Claim 1, wherein the first coating comprises a multi-wax, and the second coating comprises beeswax.
3. A hand-held flossing device, comprising:  
a housing having a handle portion and a head portion;  
a series of ratchet receiver members integrally formed with the housing;  
a floss supply comprising a floss; and  
a floss supply path defined within the housing between the floss supply and a floss exit formed in the head portion, a floss return path defined within the housing between a floss entrance and an advancement mechanism, floss being directed through the floss supply and return paths, the floss exiting through the exit and reentering through the entrance, an exposed floss portion extending between the exit and entrance;  
wherein the advancement mechanism is configured to selectively advance floss from the supply and through the supply and return paths, and the advancement mechanism comprises a ratcheting member adapted to engage the series of ratcheting receiver members of the housing.

4. The flossing device of Claim 3, wherein the advancement mechanism ratcheting member comprises a rotatable member having an axle about which floss from the return path is wound.

5. The flossing device of Claim 4, wherein the rotatable member comprises a guard disposed on either side of the axle.

6. The flossing device of Claim 5, wherein the rotatable member is disposed in the handle forwardly of the floss supply, and the floss supply path extends past the rotatable member on a side of one of the guards opposite the axle.

7. The flossing device of Claim 4, wherein the return path has a greater minimum width along its length than the supply path.

8. The flossing device of Claim 4 additionally comprising a stop mechanism disposed in the supply path between the floss supply and the advancement mechanism, the stop mechanism configured to selectively prevent advancement of the floss.

9. The flossing device of Claim 8, wherein the stop mechanism comprises a friction lock, and the friction lock and advancement member are configured so that a user can selectively apply between about 0-15 pounds of tension to floss between the stop mechanism and the advancement mechanism.

10. The flossing device of Claim 9, wherein the user can selectively apply between about 0-10 pounds of tension to the floss, and the stop mechanism and advancement mechanism are actuatable by one of the user's hands holding the device.

11. The flossing device of Claim 9, wherein the friction lock comprises a movable member and a stationary member, wherein the floss is selectively pinched between the movable and stationary members, and the stationary member comprises a truss configured to prevent substantial deflection when the movable member engages the stationary member.

12. A hand-held flossing device, comprising:

a housing having a handle portion and a head portion, the housing defining a floss path therein;

a floss supply comprising floss wound about itself; and

an advancement mechanism configured to selectively pull floss through the floss path and draw floss from the supply, the device configured so that floss unwinds

from the floss supply when the advancement mechanism draws the floss from the supply, and the floss on the supply otherwise is not under tension;

wherein the floss comprises a surface coating configured to mildly bond adjacent windings of the floss such that the windings on the floss supply will not spontaneously unwind substantially when the supply is not under tension.

13. The hand-held flossing device of Claim 12, wherein the surface coating comprises a generally non water-soluble wax.

14. The hand-held flossing device of Claim 13, wherein the surface coating comprises beeswax.

15. A hand-held flossing device, comprising:

a housing comprising a handle portion and a head portion, the head portion having an elongate back, a distal tine extending downwardly and distally at an angle of about 78-81° relative to the back, and a proximal tine extending downwardly and proximally at an angle of about 78-81° relative to the back;

a floss disposed in the housing and movable therethrough along a path, a portion of the floss exiting the housing through one of the distal and proximal tines and reentering the housing through the other of the distal and proximal tines; and

a tensioning member configured to selectively impart a tension on the floss.

16. The flossing device of Claim 15, wherein the head portion comprises a reinforcement portion disposed through the back, distal tine and proximal tine, and the head is configured so that the tines deflect toward each other about 5-15% when the floss is subjected to a tension of about 8 pounds.

17. A hand-held flossing device, comprising:

a housing having a handle portion and a head portion, the housing supporting a floss supply, a floss path, a floss take-up mechanism configured to selectively advance floss from the floss supply and through the path, and a stop mechanism configured to selectively grip at least a portion of the floss to resist advancement of the floss upon actuation of the take-up mechanism so that a tension is imparted to the floss between the stop mechanism and the take-up mechanism;

the head comprising a floss exit and a floss entrance, the exit and entrance configured so that floss disposed along the floss path exits the housing at the floss exit and reenters the housing at the floss entrance so that an exposed portion of the floss is outside of the housing between the exit and entrance;

the head having an inner wall portion and an outer wall portion, the inner wall portion having a thickness greater than the outer wall portion;

the take-up mechanism and stop mechanism configured to impart at least 4 pounds of tension to the floss.

18. The flossing device of Claim 17, wherein the inner wall portion thickness is at least twice the outer wall portion thickness.

19. The flossing device of Claim 17, wherein the inner wall portion directly supports floss at the exit and entrance.

20. The flossing device of Claim 19, wherein the inner wall portion is configured so that when floss under about 7 pounds of tension is drawn across the portion between the exit and entrance, the floss will not cut through the portion.

21. The flossing device of Claim 19, wherein the stop mechanism has a maximum tension limit, and the stop mechanism is configured so that if tension in the floss exceeds the maximum tension limit, the floss will slip relative to the stop mechanism.

22. The flossing device of Claim 21, wherein the floss has a yield strength greater than the maximum tension limit.

23. The flossing device of Claim 22, wherein the floss has a yield strength greater than about 20 pounds.

24. The flossing device of Claim 23, wherein the maximum tension limit is less than about 15 pounds.

25. The flossing device of Claim 17, wherein the housing comprises first and second segments that are configured to matingly engage one another, and wherein the segments each comprise a rib configured to engage a rib of the other segment, and one of the ribs comprises at least one energy director adapted to preferentially melt when energy is applied to the segments so as to weld the ribs together upon the application of energy.

26. The flossing device of Claim 25, wherein the second segment comprises the inner wall portion, and the first segment comprises an energy director adapted to preferentially melt when energy is applied to the segments so as to weld the inner wall portion to the first segment upon the application of energy.

27. The flossing device of Claim 26, wherein the first segment comprises a pair of adjacent energy directors configured to engage the inner wall portion of the second segment.

28. A hand-held flossing device, comprising:

- a housing having a handle portion and a head portion;

- a floss supply comprising a floss;

- a floss supply path defined within the housing between the floss supply and a floss exit formed in the head portion; and

- a floss return path defined within the housing between a floss entrance and an advancement mechanism, the advancement mechanism configured to selectively advance floss from the floss supply and through the supply and return paths;

- wherein the housing is arranged and configured to include an enclosed truss structure.

29. The flossing device of Claim 28, wherein the housing comprises a plurality of interior walls, and at least some of the interior walls interact to form an enclosed truss structure.

30. The flossing device of Claim 29, wherein the device is made of a polymer, and the truss structure and polymer are configured so that if the head of the flossing device is bent up to about 45°, the structural integrity of the floss supply and return paths is preserved.